

## **Faunistic Investigation for Marine Mollusks in Jindo Island**

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### **ABSTRACT**

As a commemorative joint survey for the 20th anniversary of the Korean Society of Systematic Zoology, molluscan fauna of Jindo Island was investigated from the materials collected from 3 localities of Jindo Island from 29th to 30th of June, 2004. A total of 77 species of 37 families were identified. Among them, 26 species of 18 families are reported for the first time in this area, including *Onchidella kurodai* (Taki, 1935) that is new to Korean fauna. For *O. kurodai*, external morphologies were described in detail with illustrations. Combining the present data with those of the previous works revealed that a total of 115 species from 43 families have been recorded in Jindo Island and its adjacent areas thus far. From a biogeographic point of view, some gastropod species (*Bittium craticulatum*, *Macroschisma dilatatum*, *Cantharidus japonicus*, *C. callichroa*, *Homalopoma sangarense*, and *Crepidula onyx*) encountered from Jindo Island were the species previously recorded in the southern and/or eastern offshores of Korean peninsula, including Jeju Island (Choe, 1992). Along with the fact that Jindo Island contains a large number of molluscan species ranging over the Yellow Sea coast, this finding is another line of evidence supporting the Kim and Kwon (1983)'s idea that this area is

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an overlapping zone of marine organisms which dwell in both the Yellow sea and southern part of Korean sea waters. No comprehensive faunistic survey was not made in the present study. We expect that further supplementary study would generate more biogeographic and faunistic knowledges than what we understand through the present study.

Key words: Molluscan fauna, Jindo Island, Korea, *Onchidella kurodai*

## INTRODUCTION

Jindo Island is geographically unique. It locates in the southwestern part of Korea and straddles a boundary zone between the Yellow Sea and southern sea area of Korean peninsula. Due to its peculiar geography, this area has been known to be a species-abundant overlapping zone of marine organisms which dwell in both the Yellow sea and southern part of Korean sea waters (Kim and Kwon, 1983), and is of particular interest for invertebrate faunal study. The first faunistic survey for the mollusks of Jindo Island and its adjacent areas was performed by Kim and Kwon (1983) and the study recorded 44 molluscan species from 26 families. Since then, a total of 89 species of 35 families have previously been recorded by following studies (Choe, 1992; Choe, 2000; Choe, 2002a, b; Choe and Park, 1993; Choe et al., 1999; Yum, 1995), including that of Kim and Kwon (1983). Over the past 20 years after the first survey by Kim and Kwon (1983), no comprehensive study concerning the molluscan fauna of Jindo Island has been made to date.

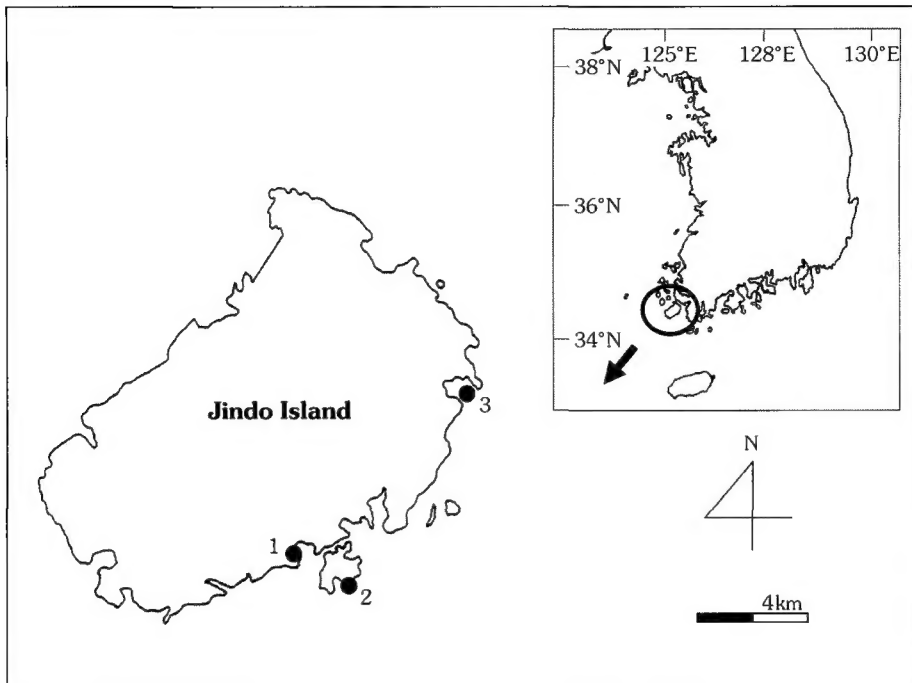
This work was performed as a joint survey of invertebrate fauna of Jindo Island to commemorate the 20th anniversary of the Korean Society of Systematic Zoology. In the present study, we attempted to understand the molluscan fauna of Jindo Island as a part of the joint survey.

## MATERIALS AND METHODS

Marine mollusks were collected in three localities, Geumgap beach, Jeopdo island, and Beolpo (Fig. 1) from 29th to 30th of June, 2004. Collection was mostly carried out in intertidal zones of low-water sea level. Materials were moved to laboratory after fixed with 95% ethanol or 5% formalin solution. Morphological characters were examined using stereo microscope (Wild M10) for species identification.

## RESULTS AND DISCUSSION

Total number of molluscan species identified in this study was 77 species of 37 families. Among these, 26 species of 18 families are the species that are newly reported in the study area and a



**Fig. 1.** Map showing the collection localities. 1, Geumgap beach; 2, Jeopdo Is; 3, Beolpo.

pulmonate *Onchidella kurodai* (Taki, 1935) is the first report in Korean fauna. When combined the present data with previous records, a total of 115 species of 43 families have been recorded in Jindo Island and its adjacent areas so far (See systematic account). For *Onchidella kurodai* (Taki, 1935), external morphologies were described in detail with illustrations. The molluscan species recorded in Jindo Island and its adjacent areas are listed as the followings.

## SYSTEMATIC ACCOUNT

\*New records to Jindo Island

\*\*New record to Korean fauna

Phylum Mollusca Linnaeus, 1758

Class Polyplacophora Blainville, 1816

Order Neoloricata Bergenhayn, 1955

Family Ischnochitonidae Dall, 1889

### 1. *Lepidozona coreanica* (Reeve, 1847)

**Previous records.** Hajodo Is., Gwansado Is., Nulokdo Is. (Kim and Kwon, 1983); Saepo (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**Materials examined.** Beolpo, 29 June 2004, 5 inds; Geumgap beach, 30 June 2004, 1 ind.

**2. *Ischnochiton* sp.**

**Previous record.** Hajodo Is., Galmokdo Is. (Kim and Kwon, 1983).

**3. *Ischnochiton boninensis* Bergenhayn, 1933**

**Previous records.** Saepo (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**4. *Ischnochiton comptus* (Gould, 1859)**

**Previous records.** Namdong-ri (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 14 inds.

Family Mopaliidae Dall, 1889

**\*5. *Mopalia retifera* Thiele, 1909**

**Materials examined.** Geumgap beach, 30 June 2004, 2 inds.

**6. *Placiphorella stimpsoni* (Gould, 1895)**

**Previous record.** Seogechoado Is. (Choe, 2002b).

Family Chitonidae Rafinesque, 1815

**7. *Chiton kurodai* Is. and Iw. Taki, 1929**

**Previous records.** Geumgap (Yum, 1995); Saepo (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**8. *Liolophura japonica* (Lischke, 1873)**

**Previous records.** Hajodo Is., Jukhangdo Is., Cheongdeungdo Is., Galmokdo Is. (Kim and Kwon, 1983); Namdong-ri, Saepo (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 5 inds.

Family Acanthochitonidae Pilsbry, 1893

**9. *Acanthochitona achates* (Gould, 1859)**

**Previous records.** Namdong-ri, Saepo (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**Materials examined.** Beolpo, 29 June 2004, 20 inds; Geumgap beach, 30 June 2004, 34 inds.

**10. *Acanthochitona circellata* (Reeve, 1847)**

**Previous record.** Geumgap (Yum, 1995).

**11. *Acanthochitona defilippii* (Tapparone-Canefri, 1874)**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Geumgap (Yum, 1995).

**Materials examined.** Beolpo, 29 June 2004, 1 ind; Geumgap beach, 30 June 2004, 5 inds.

**12. *Acanthochitona rubrolineata* (Lischke, 1873)**

**Previous records.** Hajodo Is., Jukhangdo Is., Cheongdeungdo Is., Gwansado Is., Galmokdo Is., Nulokdo Is. (Kim and Kwon, 1983); Geumgap (Yum, 1995).

**Materials examined.** Beolpo, 29 June 2004, 1 ind; Geumgap beach, 30 June 2004, 21 inds; Jeopdo Is., 30 June 2004, 8 inds.

Class Gastropoda Cuvier, 1797

Subclass Prosobranchia Milne Edwards, 1848

Order Archaeogastropoda Thiele, 1925

Family Haliotidae Rafinesque, 1815

**\*13. *Nordotis discus* (Reeve, 1846)**

**Materials examined.** Beolpo, 29 June 2004, 1 ind; Geumgap beach, 30 June 2004, 1 ind.

Family Fissurellidae Fleming, 1822

**\*14. *Tugali decussata* A. Adams, 1852**

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

**15. *Macroschisma dilatatum* A. Adams, 1850**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Seogeocho Is. (Choe, 2002b).

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

Family Patellidae Rafinesque, 1815

**16. *Cellana grata* (Gould, 1859)**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

**17. *Cellana toreuma* (Reeve, 1855)**

**Previous records.** Hajodo Is., Jukhangdo Is., Cheongdeungdo Is., Gwansado Is., Galmokdo Is., Nulokdo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong-ri (Choe, 2002a); Seogeocho Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 7 inds.

Family Acmaeidae Forbes, 1850

**18. *Patelloida (Collisellina) saccharina lanx* (Reeve, 1855)**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Namdong-ri (Choe, 2002a).

**Materials examined.** Geumgap beach, 30 June 2004, 14 inds.

**19. *Patelloida (Asteracmea) pygmaea* (Dunker, 1860)**

**Previous record.** Seogeocho Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 15 inds.

**20. *Patelloida (Asteracmea) pygmaea lampanicola* (Habe, 1944)**

**Previous record.** Namdong-ri (Choe, 2002a).

**Materials examined.** Beolpo, 29 June 2004, 8 inds; Geumgap beach, 30 June 2004, 3 inds; Jeopdo Is., 30 June 2004, 1 ind.

**21. *Collisella (Collisella) dorsuosa* (Gould, 1859)**

**Previous record.** Jukhangdo Is. (Kim and Kwon, 1983).

**22. *Collisella (Conoidacmea) heroldi* (Dunker, 1861)**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeo-chado Is. (Choe, 2002b).

**23. *Notoacmea schrenkii* (Lischke, 1868)**

**Previous record.** Hajodo Is. (Kim and Kwon, 1983).

**24. *Notoacmea fuscoviridis* Teramachi, 1949**

**Previous records.** Jindo Is. (Choe, 1992); Namdong-ri (Choe, 2002a); Seogeochoado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 8 inds.

**25. *Notoacmea concinna* Lischke, 1870**

**Previous records.** Seongnamdo Is., Hajodo Is., Jukhangdo Is., Dokgeodo Is., Gwansado Is., Galmokdo Is., Nulokdo Is. (Kim and Kwon, 1983); Namdong-ri, Saepo (Choe, 2002a); Seogeo-chado Is. (Choe, 2002b).

**Materials examined.** Beolpo, 29 June 2004, 2 inds; Geumgap beach, 30 June 2004, 14 inds.

**26. *Acmaea (Niveotectura) pallida* (Gould, 1857)**

**Previous records.** Hajodo Is., Cheongdeungdo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000).

Family Trochidae Rafinesque, 1815

**27. *Lirularia (Lirularia) iridescens* (Schrenck, 1863)**

**Previous record.** Seogeochoado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 2 inds.

**28. *Monodonta (Neomonodonta) perplexa* (Pilsbry, 1889)**

**Previous records.** Dokgeodo Is. (Kim and Kwon, 1983); Jindo Is. (Choe et al., 1999).

**29. *Monodonta (Monodonta) labio labio* (Linnaeus, 1758)**

**Previous records.** Seongnamdo Is., Hajodo Is., Jukhangdo Is., Dokgeodo Is., Cheongdeungdo Is., Gwansado Is., Galmokdo Is. (Kim and Kwon, 1983); Jindo Is. (Choe et al., 1999).

**30. *Monodonta (Monodonta) labio confusa* Tapparone-Canefri, 1874**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeo-chado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 45 inds.

**31. *Chlorostoma lischkei* (Tapparone-Canefri, 1874)**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeo-chado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 17 inds.

**32. *Omphalius rusticus* (Gmelin, 1791)**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeo-chado Is. (Choe, 2002b).

**Materials examined.** Beolpo, 29 June 2004, 1 ind; Geumgap beach, 30 June 2004, 33 inds.

**33. *Omphalius nigerrima* (Gmelin, 1791)**

**Previous record.** Hajodo Is., Cheongdeungdo Is., Galmokdo Is. (Kim and Kwon, 1983).

**34. *Cantharidus hirasei* (Pilsbry, 1901)**

**Previous record.** Seogeochoado Is. (Choe, 2002b).

**35. *Cantharidus japonicus* (A. Adams, 1853)**

**Previous records.** Namdong-ri, Saepo (Choe, 2002a); Seogeochoado Is. (Choe, 2002b).

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

**36. *Cantharidus callichroa* (Philippi, 1850)**

**Previous records.** Cheongdeungdo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong-ri (Choe, 2002a).

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

**37. *Umbonium (Umbonium) thomasi* (Crosse, 1863)**

**Previous record.** Gwanmaedo Is. (Kim and Kwon, 1983).

**38. *Umbonium (Suchium) costatum* (Kiener, 1838)**

**Previous record.** Hajodo Is., Gwanmaedo Is. (Kim and Kwon, 1983).

**Materials examined.** Geumgap beach, 30 June 2004, 9 inds.

Family Turbinidae Rafinesque, 1815

**39. *Lunella coronata coreensis* (Recluz, 1853)**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a).

**Materials examined.** Beolpo, 29 June 2004, 11 inds; Geumgap beach, 30 June 2004, 23 inds; Jeopdo Is., 30 June 2004, 1 ind.

**40. *Homalopoma amussitatum* (Gould, 1861)**

**Previous record.** Namdong-ri (Choe, 2002a).

**41. *Homalopoma sangarense* (Schrenck, 1862)**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

Family Neritidae Rafinesque, 1815

**42. *Nerita (Heminerita) japonica* (Dunker, 1860)**

**Previous records.** Seongnamdo Is., Sangjodo Is., Hajodo Is., Jukhangdo Is., Dokgeodo Is., Cheongdeungdo Is., Gwansado Is., Galmokdo Is., Nulokdo Is. (Kim and Kwon, 1983); Jindo Is. (Choe, 1992); Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeocho Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 83 inds; Jeopdo Is., 30 June 2004, 11 inds.

Order Mesogastropoda Thiele, 1925

Family Littorinidae Gray, 1840

**43. *Littorina brevicula* (Philippi, 1844)**

**Previous records.** Seongnamdo Is., Hajodo Is., Jukhangdo Is., Dokgeodo Is., Cheongdeungdo Is., Galmokdo Is., Nulokdo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeocho Is. (Choe, 2002b).

**Materials examined.** Beolpo, 29 June 2004, 60 inds; Geumgap beach, 30 June 2004, 64 inds; Jeopdo Is., 30 June 2004, 33 inds.

**44. *Granulilittorina exigua* (Dunker, 1860)**

**Previous records.** Seongnamdo Is., Hajodo Is., Jukhangdo Is., Dokgeodo Is., Cheongdeungdo Is., Galmokdo Is., Nulokdo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeocho Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 46 inds.

**45. *Littoraria (Palustorina) articulata* (Philippi, 1846)**

**Previous record.** Seongnamdo Is. (Kim and Kwon, 1983).

Family Barleeidae Gray, 1847

**46. *Barleeia trifasciata* Habe, 1960**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

**Materials examined.** Geumgap beach, 30 June 2004, 38 inds.

Family Cerithiidae Fleming, 1822

**\*47. *Bittium craticulatum* Gould, 1860**

**Materials examined.** Geumgap beach, 30 June 2004, 2 inds.

**48. *Rhinoclavis kochi* (Philippi, 1848)**

**Previous record.** Jindo Is. (Choe and Park, 1993).



Family Potamididae H. and A. Adams, 1854

**49. *Cerithideopsilla cingulata* (Gmelin, 1791)**

**Previous records.** Jindo Is. (Choe, 1992); Sopo Jindo Is. (Choe et al., 1999).

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

**\*50. *Cerithideopsilla djadjariensis* (Martin, 1899)**

**Materials examined.** Beolpo, 29 June 2004, 26 inds.

**51. *Batillaria multiformis* (Lischke, 1869)**

**Previous records.** Sangjodo Is., Hajodo Is. (Kim and Kwon, 1983); Jindo Is. (Choe, 1992); Jindo Is. (Choe et al., 1999); Namdong-ri (Choe, 2002a).

**Materials examined.** Beolpo, 29 June 2004, 12 inds.

**52. *Batillaria cumingi* (Crosse, 1862)**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Jindo Is. (Choe, 1992).

**Materials examined.** Geumgap beach, 30 June 2004, 6 inds; Jeopdo Is., 30 June 2004, 40 inds.

Family Vermetidae Rafinesque, 1815

**53. *Serpulorbis imbricatus* (Dunker, 1860)**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeo-chado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 15 inds.

Family Hipponicidae Troschel, 1861

**54. *Sabia conica* (Schumacher, 1817)**

**Previous record.** Jindo Is. (Choe, 1992).

Family Calyptraeidae Lamarck, 1809

**\*55. *Crepidula onyx* (Sowerby, 1824)**

**Materials examined.** Geumgap beach, 30 June 2004, 14 inds.

**56. *Ergaea walshi* (Reeve, 1859)**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

Order Heteropoda Lamarck, 1812

Family Naticidae Forbes, 1838

**\*57. *Glossaulax didyma* (Röding, 1798)**

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

**58. *Lunatia gilva* (Philippi, 1851)**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Jindo Is. (Choe et al., 1999).

**Materials examined.** Beolpo, 29 June 2004, 2 inds..

Order Neogastropoda Wenz, 1938

Family Muricidae Rafinesque, 1815

**\*59. *Rapana venosa* (Valenciennes, 1846)**

**Materials examined.** Beolpo, 29 June 2004, 4 inds.

**60. *Reishia clavigera* (Küster, 1860)**

**Previous records.** Jukhangdo Is., Cheongdeungdo Is., Gwansado Is., Galmokdo Is., Nulokdo Is. (Kim and Kwon, 1983); Namdong-ri, Saepo (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**Materials examined.** Beolpo, 29 June 2004, 9 inds.

**61. *Reishia bronni* (Dunker, 1860)**

**Previous records.** Hajodo Is., Cheongdeungdo Is. (Kim and Kwon, 1983).

**62. *Reishia luteostoma* (Holten, 1803)**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Namdong-ri (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**63. *Ocinebrellus aduncus* (Sowerby, 1834)**

**Previous record.** Jindo Is. (Choe, 1992).

**64. *Ocinebrellus inornatum* (Re'cluz, 1851)**

**Previous records.** Jindo Is. (Choe, 1992); Imhae (Choe and Park, 1997); Jindo Is. (Choe et al., 1999); Namdong-ri (Choe, 2002a).

**Materials examined.** Geumgap beach, 30 June 2004, 8 inds.

**65. *Ceratostoma rorifluum* (Adams and Reeve, 1848)**

**Previous records.** Hajodo Is., Jukhangdo Is., Cheongdeungdo Is., Gwansado Is., Galmokdo Is., Nulokdo Is. (Kim and Kwon, 1983); Jindo Is. (Choe, 1992); Imhae (Choe and Park, 1997); Jindo Is. (Choe et al., 1999); Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 34 inds; Jeopdo Is., 30 June 2004, 16 inds.

**66. *Ceratostoma burnetti* (Adams and Reeve)**

**Previous record.** Namdong-ri (Choe, 2002a).

Family Columbelloidea Swainson, 1840

**67. *Mitrella bicincta* (Gould, 1860)**

**Previous records.** Hajodo Is., Cheongdeungdo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Seogechoado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 3 inds.

**68. *Indomitrella lischkei* (E. A. Smith, 1879)**

**Previous record.** Jindo Is. (Choe, 1992).

**Materials examined.** Beolpo, 29 June 2004, 4 inds; Geumgap beach, 30 June 2004, 9 inds.

Family Nassariidae Iredale, 1916

**69. *Nassarius (Niotha) livescens* (Philippi, 1849)**

**Previous record.** Hajodo Is. (Kim and Kwon, 1983).

**70. *Nassarius (Niotha) festivus* (Powys, 1835)**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Jindo Is. (Choe, 1992); Namdong-ri (Choe, 2002a).

**Materials examined.** Beolpo, 29 June 2004, 45 inds.

**\*71. *Nassarius (Zeuxis) castus* (Gould, 1850)**

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

**72. *Nassarius (Hima) fraterculus* (Dunker, 1860)**

**Previous records.** Jindo Is. (Choe, 1992); Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeocho Is. (Choe, 2002b).

**Material examined.** Geumgap beach, 30 June 2004, 30 inds.

Family Buccinidae Rafinesque, 1815

**73. *Cantharus cecillei* (Philippi, 1844)**

**Previous records.** Sangjodo Is., Cheongdeungdo Is. (Kim and Kwon, 1983).

**Materials examined.** Beolpo, 29 June 2004, 2 inds.

**74. *Japeuthria ferrea* (Reeve, 1847)**

**Previous records.** Hajodo Is., Cheongdeungdo Is., Gwansado Is., Galmokdo Is. (Kim and Kwon, 1983); Namdong-ri, Saepo (Choe, 2002a); Seogeocho Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 2 inds.

Family Fasciolaridae Gray, 1853

**75. *Fusinus perplexus* (A. Adams, 1863)**

**Previous record.** Hajodo Is. (Kim and Kwon, 1983).

Family Costellariidae Macdonald, 1860

**76. *Pusia inermis* (Reeve, 1844)**

**Previous records.** Jindo Is. (Choe, 1992); Namdong-ri, Saepo (Choe, 2002a).

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

Subclass Opisthobranchia Milne Edwards, 1848

Order Cephalaspidea Fischer, 1883

Family Atyidae Thiele, 1925

**\*77. *Bullacta exarata* (Philippi, 1848)**

**Materials examined.** Beolpo, 29 June 2004, 33 inds.

Family Haminoeidae Pilsbry, 1895

**78. *Haloa japonica* Pilsbry, 1921**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Saepo (Choe, 2002a); Seogechoado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 10 inds.

Subclass Pulmonata Cuvier, 1817

Order Systellommatophora Pilsbry, 1948

Family Onchidiidae Gray, 1824 콩갯민숭이과(신칭)

Genus *Onchidella* Gray, 1850 콩갯민숭이속(신칭)

**\*\*79. *Onchidella kurodai* (Taki, 1935) (Fig. 2A, B). 검은콩갯민숭이 (신칭)**

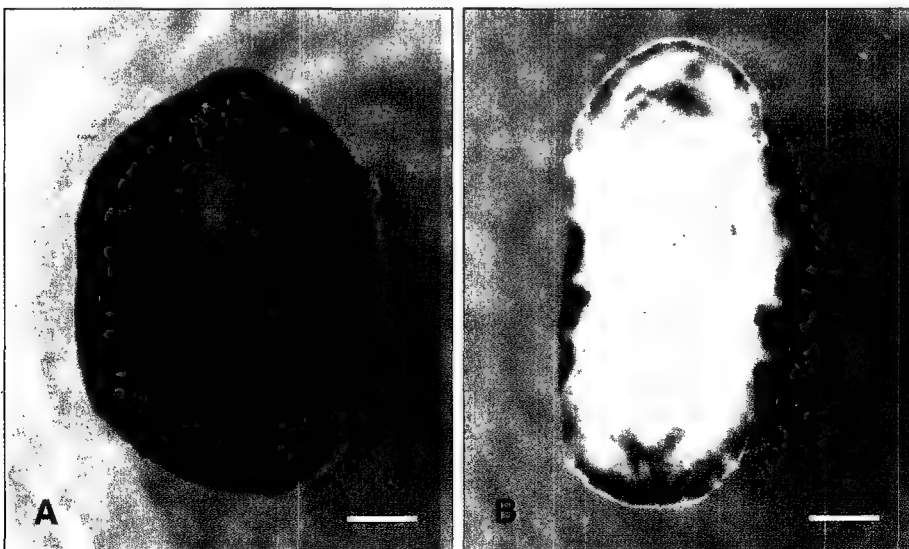
*Oncidiella kurodai* Taki, 1935, pp. 63-65, 68, pl. 4, figs. 1, 3, 5, 7.

*Onchidiella kurodai* Okutani, 1986, p. 233; Higo and Goto, 1993, p. 444.

*Onchidella kurodai* Okutani, 2000, p. 813, pl. 404, fig. 4.

**Materials examined.** Geumgap beach, 30 June 2004, 12 inds.

**Description.** Oval in body shape without shell. Notum ashy black, foot light gray and labial palp dark gray in colors. Numerous small pustules on dorsal surface. Longitudinal streak lined along the median of notum. Marginal gland arranged along the edge of mantle about 20 in number. Inside of



**Fig. 2.** *Onchidella kurodai* (Taki, 1935). A, Dorsal view; B, Ventral view (bar = 1 mm).

hyponotum covered with minute pustules. Pneumostome opens at the end of hyponotum. 5 mm in length, 3.8 mm in width, 2.9 mm in height (preserved specimen).

**Type locality.** Gagoshima and Minatoyama in Japan.

**Distribution.** Korea (Jindo Island), Japan (Seto Island and Ariake Bay).

Order Basommatophora Schmidt, 1855

Family Siphonariidae Gray, 1840

**80. *Siphonaria (Sacculosiphonaria) japonica* (Donovan, 1834)**

**Previous records.** Sangjodo Is., Hajodo Is., Gwanmaedo Is., Gwansado Is., Galmokdo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a); Seogeocho-do Is. (Choe, 2002b).

**Materials examined.** Beolpo, 29 June 2004, 3 inds.

Class Bivalvia Linnaeus, 1758

Subclass Pteriomorpha Beurlen, 1944

Order Arcoida Stoliczka, 1871

Family Arcidae Lamarck, 1809

**81. *Arca boucardi* Jousseaume, 1894**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

**82. *Scapharca broughtonii* (Schrenck, 1867)**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000).

**\*83. *Scapharca subcrenata* (Lischke, 1869)**

**Material examined.** Beolpo, 29 June 2004, 1 ind.

**\*84. *Tegillarca granosa* (Linnaeus, 1758)**

**Materials examined.** Beolpo, 29 June 2004, 64 inds.

**85. *Arcopsis symmetrica* (Reeve, 1844)**

**Previous records.** Namdong-ri (Choe, 2002a); Seogeocho-do Is. (Choe, 2002b).

**Material examined.** Beolpo, 29 June 2004, 1 ind.

**\*86. *Estellarca olivacea* (Reeve, 1844)**

**Material examined.** Beolpo, 29 June 2004, 1 ind.

**87. *Didimarca tenebricum* (Reeve, 1844)**

**Previous record.** Namdong-ri (Choe, 2002a).

**Materials examined.** Beolpo, 29 June 2004, 24 inds.

Order Mytiloida Ferussac, 1822

Family Mytilidae Rafinesque, 1815

**88. *Mytilus coruscus* Gould, 1861**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

**\*89. *Mytilus galloprovincialis* Linnaeus, 1819**

**Materials examined.** Beolpo, 29 June 2004, 5 inds.

**90. *Septifer (Mytilisepta) virgatus* (Wiegmann, 1837)**

**Previous records.** Hajodo Is., Jukhangdo Is., Dokgeodo Is., Cheongdeungdo Is., Galmokdo Is Nulokdo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong-ri (Choe, 2002a).

**Materials examined.** Geumgap beach, 30 June 2004, 130 inds.

**\*91. *Septifer (Mytilisepta) keenae* Nomura, 1936**

**Materials examined.** Geumgap beach, 30 June 2004, 8 inds.

**92. *Modiolus (Modiolus) modiolus difficilis* (Kuroda and Habe, 1950)**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong ri, Saepo (Choe, 2002a); Seogeochoado Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 82 inds.

**\*93. *Modiolus (Modiolus) nipponicus* Oyama, 1950**

**Materials examined.** Geumgap beach, 30 June 2004, 4 inds.

**\*94. *Musculus (Musculista) senhousia* (Benson, 1842)**

**Materials examined.** Beolpo, 29 June 2004, 2 inds.

**95. *Xenostrobus atratus* (Lischke, 1871)**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Namdong-ri (Choe, 2002a).

Order Ostreoida Ferussac, 1822

Family Pectinidae Wilkes, 1810

**96. *Chlamys (Coralichlamys) irregularis* (Sowerby, 1842)**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

**97. *Chlamys (Azumapecten) farreri nipponensis* Kuroda, 1932**

**Previous record.** Hajodo Is. (Kim and Kwon, 1983).

**98. *Chlamys (Azumapecten) squamata* (Gmelin, 1791)**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

Family Anomiidae Rafinesque, 1815

**99. *Monia macrochisma* (Deshayes, 1839)**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

Family Ostreidae Wilkes, 1810

**100. *Crassostrea gigas* (Thunberg, 1793)**

**Previous records.** Hajodo Is. (Kim and Kwon, 1983); Gwanmaedo Is. (Choe, 2000); Namdong-ri, Saepo (Choe, 2002a).

**Materials examined.** Beolpo, 29 June 2004, 10 inds; Geumgap beach, 30 June 2004, 36 inds.

**101. *Crassostrea echinata* (Quoy and Gaimard, 1835)**

**Previous record.** Seogeocho Is. (Choe, 2002b).

**Materials examined.** Geumgap beach, 30 June 2004, 3 inds; Jeopdo Is., 30 June 2004, 5 inds.

**\*102. *Ostrea denselamellosa* Lischke, 1869**

**Materials examined.** Beolpo, 29 June 2004, 5 inds.

Subclass Heterodonta Neumayr, 1884

Order Veneroida H. and A. Adams, 1856

Family Lasaeidae Gray, 1847

**103. *Lasaea undulata* (Gould, 1861)**

**Previous record.** Gwanmaedo Is. (Choe, 2000).

**Materials examined.** Geumgap beach, 30 June 2004, 25 inds.

Family Carditidae Fleming, 1828

**104. *Cardita leana* Dunker, 1860**

**Previous records.** Gwanmaedo Is. (Choe, 2000); Seogeocho Is. (Choe, 2002b).

**Material examined.** Geumgap beach, 30 June 2004, 1 ind.

Family Mactridae Lamarck, 1809

**\*105. *Mactra (Mactra) veneriformis* Deshayes, 1853**

**Material examined.** Beolpo, 29 June 2004, 1 ind.

Family Trapeziidae Lamy, 1920

**\*106. *Trapezium (Neotrapezium) liratum* (Reeve, 1843)**

**Materials examined.** Beolpo, 29 June 2004, 13 inds.

Family Veneridae Rafinesque, 1815

**\*107. *Dosinella corrugata* (Reeve, 1850)**

**Material examined.** Beolpo, 29 June 2004, 1 ind.

**108. *Ruditapes philippinarum* (A. Adams and Reeve, 1850)**

**Previous record.** Sangjodo Is., Hajodo Is. (Kim and Kwon, 1983).

**Materials examined.** Beolpo, 29 June 2004, 7 inds; Jeopdo Is., 30 June 2004, 8 inds.

**109. *Gomphina (Macridiscus) aequilatera* (Sowerby, 1825)**

**Previous records.** Gwanmaedo Is. (Kim and Kwon, 1983); Jindo Is. (Choe et al., 1999).

**\*110. *Cyclina sinensis* (Gmelin, 1791)**

**Materials examined.** Beolpo, 29 June 2004, 2 inds; Jeopdo Is., 30 June 2004, 3 inds.

**111. *Clementia (Clementia) vatheleti* Mabile, 1901**

**Previous record.** Jindo Is. (Choe et al., 1999).

Family Glauconomidae Gray, 1853

**\*112. *Glauconome chinensis* Gray, 1828**

**Material examined.** Jeopdo Is., 30 June 2004, 1 ind.

Subclass Anomalodesmata Dall, 1889

Order Pholadomyoidea Newell, 1965

Family Laternulidae Hedley, 1918

**\*113. *Laternula (Laternula) anatina* (Linnaeus, 1758)**

**Material examined.** Jeopdo Is., 30 June 2004, 1 ind.

Class Cephalopoda Cuvier, 1797

Order Teuthoidea Naef, 1916

Family Loliginidae Orbigny, 1848

**114. *Loligo (Nipponololigo) beka* Sasaki, 1929**

**Previous record.** Nulokdo Is. (Kim and Kwon, 1983).

Order Octopoda Leach, 1818

Family Octopodidae Orbigny, 1845

**\*115. *Octopus minor* (Sasaki, 1920)**

**Material examined.** Beolpo, 29 June 2004, 1 ind.

In the present study, we report a total of 115 species of 43 families have been recorded in Jindo Island and its adjacent areas so far. From a biogeographic point of view, it is interesting to note that some of gastropod species encountered from Jindo Island were previously recorded in Jeju Island, southernmost island of Korean territory and in the Eastern Sea as well (Choe, 1992): *Bittium craticulatum* Gould, 1860 had recorded in Jeju Island. *Macroschisma dilatatum* A. Adams, 1850, *Cantharidus japonicus* (A. Adams, 1853), *C. callichroa* (Philippi, 1850), *Homalopoma sangarens* (Schrenck, 1862), and *Crepidula onyx* (Sowerby, 1824) have been reported to distribute in the southern and/or eastern offshores of Korean peninsula, including Jeju



Island. Along with the fact that Jindo Island contains a large number of molluscan species ranging over the Yellow Sea coast, this finding is another line of evidence supporting the Kim and Kwon (1983)'s idea that this area is an overlapping zone of marine organisms which dwell in both the Yellow sea and southern part of Korean sea waters. No comprehensive faunistic survey was not made in the present study. We expect that further supplementary study would generate more biogeographic and faunistic knowledges than what we understand through the present study.

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## 진도의 해산 연체동물상

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## 요 약

한국동물분류학회 창립 20주년을 기념하기 위하여 진도의 무척추 동물상에 관한 공동조사가 수행되었다. 본 연구에서는 해산연체동물상을 연구하기 위해 2004년 6월 29일에서 6월 30일까지 3개 지점에서 조사를 실시하였고 그 결과 모두 37과 77종의 연체동물 종이 채집, 동정되었다. 이들 중 18과 26종은 진도 지역에서 처음으로 채집, 보고되는 종이었으며, 특히 *Onchidella kurodai* (Taki, 1935) 검은콩갯민숭이는 한국 미기록종으로 밝혀져 이에 대한 기재와 도판을 작성하였다. 과거의 문헌기록 등을 포함하여 본 연구로부터 새롭게 기록된 종들을 종합하면 진도 및 인근 지역에서 보고된 연체동물은 현재까지 총 43과 115종이 된다. 생물지리학적 특성의 관점에서 볼 때, 진도에서 발견된 일부 복족류 종들 (*Bittium craticulatum*, *Macroschisma dilatatum*, *Cantharidus japonicus*, *C. callichroa*, *Homalopoma sangarense*, *Crepidula onyx*)은 제주지역을 포함한 한반도 남해 혹은 동해안 지역에서 이전의 연구를 통해 발견된 종들이었다. 진도지역에는 한반도 서해안 연안에 걸쳐 분포하는 연체동물의 많은 종이 서식하고 있다는 사실과 함께, 본 연구로부터 새롭게 얻어진 발견은 진도가 한반도의 남부 해안과 서부 해안 생물상이 중첩분포하고 있는 지역이라는 이전의 Kim and Kwon (1983)의 의견을 지지하는 또 하나의 증거가 된다. 향후 종합적인 생물상 연구가 수행될 경우 진도지역의 생물지리학적 특성에 관련된 새로운 정보는 물론, 보다 다양한 동물상이 추가될 것으로 기대된다.